

# Analysis of Early Retirement Incentive Program (ERIP) for the Worcester Regional Retirement System

August, 2004



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# INTRODUCTION

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The Public Employee Retirement Administration Commission (PERAC) is pleased to release our analysis of Section 116 of Chapter 46 of the Acts of 2003, *An Act Providing Relief and Flexibility to Municipal Officials* which established a local option to allow cities, towns, counties, authorities, and districts to offer an Early Retirement Incentive Program (ERIP). Subsection 8 of the law directed PERAC to complete an analysis of the costs and liabilities attributable to the additional benefits payable in accordance with the Act and submit a report to the board by December 31, 2004.

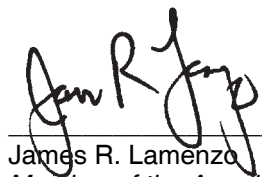
The law provides that retirement allowances of members who participated in the ERIP be determined by adding up to 5 years to the member's age and/or creditable service (any combination in full years up to a maximum of 5 years). A member's enhanced benefit cannot exceed 80% of the average rate of annual compensation used in his/her calculation. Members retiring under the program had effective dates of retirement between October 11, 2003 and January 30, 2004.

This study was based on active member data as of December 31, 2002, and additional data for retirees who were eligible for and elected the ERIP. All data was supplied by the board. We previously reviewed the December 31, 2002 data as part of the 2003 data submission process. We reviewed each member's data as both an active and retired member for reasonableness and consistency.

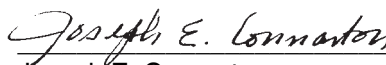
We used the investment return assumption used in the most recent actuarial valuation report. For all other assumptions, we used the standard PERAC assumption set for performing actuarial valuations as of January 1, 2003. These assumptions differ from the assumptions used in your last actuarial valuation performed as of January 1, 2001. The assumptions are shown at the back of this report.

We believe this report represents an accurate appraisal of the costs and liabilities of the ERIP for the retirement system. This analysis was performed in accordance with generally accepted actuarial principles and practices relating to pension plans. In our opinion, the actuarial assumptions used in this report are reasonable, related to plan experience and expectations, and represent our best estimate of anticipated experience.

Respectfully submitted,  
Public Employee Retirement Administration Commission



James R. Lamenzo  
*Member of the American Academy of Actuaries*  
*Associate of the Society of Actuaries*  
*Enrolled Actuary Number 02-4709*



Joseph E. Connarton  
*Executive Director*

Dated: August 11, 2004

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# COST ANALYSIS BY GOVERNMENTAL UNIT

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## Methodology

The results of our analysis for each governmental unit that accepted the ERIP are presented on the following pages. Participating units had the option to limit the number of years and/or the number of members eligible to retire under the program. Such limitations are noted.

Our analysis of the cost of the ERIP consisted of measuring the change in both the actuarial accrued liability and normal cost before and after the application of the enhanced benefit. The amortization the increase in actuarial accrued liability and the normal cost form the basis of the impact of the ERIP on the plan's funding schedule. These items are discussed below.

## Actuarial Accrued Liability

We measured the increase in actuarial accrued liability due to the incentive for each member who retired under the program. First, we valued the group as active members on January 1, 2003 (including any changes to reflect service adjustments made after January 1, 2003, such as service buy-backs). This calculation determines the liability attributable to the employees who elected the ERIP exclusive of the additional liability associated with the incentive program. These results were then brought forward on an actuarial basis to reflect the estimated accrued liability as of the average retirement date for each unit.

We then valued the same group as retirees after the application of the ERIP. These liabilities were determined as of the average retirement date for each unit.

The accrued liability for the members as retirees including the ERIP less the accrued liability for the members as active employees excluding the ERIP represents the increase in accrued liability due to the ERIP. This increase will be amortized as part of the system's funding schedule and will be a component of the system's annual appropriation. We assumed the amortization of the increase in liability would begin with the FY06 appropriation.

## Normal Cost

The increase in actuarial liability is somewhat offset by a decrease in normal cost. The normal cost, or actuarial cost for the current year for active members, is shown as of January 1, 2003. There is no normal cost for retired members. Any decrease in normal cost for a retiring member would only be expected to last for a few years (the period the member would have remained in active service if the ERIP were not implemented).

## COST ANALYSIS BY GOVERNMENTAL UNIT *(continued)*

### Town of Auburn

Actives		Retirees	
Number of Members	2	Number of Members	2
Average Service	22.2	Average Age	53.7
Average Compensation	\$54,531	Average Annual Benefit	\$32,259

	As Actives	As Retirees
Total Regular Compensation	\$109,100	N/A
Total Normal Cost	\$14,900	N/A
Employee Contributions	\$7,900	N/A
Net Employer Normal Cost	\$7,000	N/A
Actuarial Liability (as of December 31, 2003)	\$533,100	\$742,300

Increase in Actuarial Liability (as of December 31, 2003)	\$209,200
Amortization of Increase for FY06 (assumed average payment October 1)	
15-year level basis	\$26,800
4.5% annual increasing basis to 2028	\$15,400

The above results provide a measure of the increase in actuarial accrued liability and decrease in normal cost due to the ERIP. The actuarial liability and normal cost were determined as active members (before the implementation of the ERIP) and as retired members (with the enhanced ERIP benefit).

For active members, average service reflects service as of January 1, 2003 but excludes any enhanced service provided by the ERIP. For retired members, the averages are as of December 31, 2003.

## COST ANALYSIS BY GOVERNMENTAL UNIT *(continued)*

### Town of Barre

Actives	
Number of Members	1
Average Service	22
Average Compensation	\$37,272

Retirees	
Number of Members	1
Average Age	53.3
Average Annual Benefit	\$15,356

	As Actives	As Retirees
Total Regular Compensation	\$37,272	N/A
Total Normal Cost	\$1,400	N/A
Employee Contributions	\$1,400	N/A
Net Employer Normal Cost	\$0	N/A
Actuarial Liability (as of December 31, 2003)	\$78,000	\$95,700

Increase in Actuarial Liability (as of December 31, 2003)	\$17,700
Amortization of Increase for FY06 (assumed average payment October 1)	
15-year level basis	\$2,300
4.5% annual increasing basis to 2028	\$1,300

The above results provide a measure of the increase in actuarial accrued liability and decrease in normal cost due to the ERIP. The actuarial liability and normal cost were determined as active members (before the implementation of the ERIP) and as retired members (with the enhanced ERIP benefit).

For active members, average service reflects service as of January 1, 2003 but excludes any enhanced service provided by the ERIP. For retired members, the averages are as of December 31, 2003.

Total compensation and service figures are shown, but costs and liabilities reflect an allocation due to this member's service in two units.

## COST ANALYSIS BY GOVERNMENTAL UNIT *(continued)*

### Town of Douglas

Actives		Retirees	
Number of Members	1	Number of Members	1
Average Service	9.8	Average Age	67.5
Average Compensation	\$71,400	Average Annual Benefit	\$22,870

	As Actives	As Retirees
Total Regular Compensation	\$71,400	N/A
Total Normal Cost	\$9,800	N/A
Employee Contributions	\$6,800	N/A
Net Employer Normal Cost	\$3,000	N/A
Actuarial Liability (as of December 31, 2003)	\$154,500	\$247,200

Increase in Actuarial Liability (as of December 31, 2003)	\$92,700
Amortization of Increase for FY06 (assumed average payment October 1)	
15-year level basis	\$11,900
4.5% annual increasing basis to 2028	\$6,800

The above results provide a measure of the increase in actuarial accrued liability and decrease in normal cost due to the ERIP. The actuarial liability and normal cost were determined as active members (before the implementation of the ERIP) and as retired members (with the enhanced ERIP benefit).

For active members, average service reflects service as of January 1, 2003 but excludes any enhanced service provided by the ERIP. For retired members, the averages are as of December 31, 2003.

## COST ANALYSIS BY GOVERNMENTAL UNIT *(continued)*

### Town of Dudley – Limited to 3 employees

Actives		Retirees	
Number of Members	2	Number of Members	2
Average Service	19.3	Average Age	53.4
Average Compensation	\$27,630	Average Annual Benefit	\$10,213

	As Actives	As Retirees
Total Regular Compensation	\$55,300	N/A
Total Normal Cost	\$5,400	N/A
Employee Contributions	\$4,400	N/A
Net Employer Normal Cost	\$1,000	N/A
Actuarial Liability (as of December 31, 2003)	\$221,800	\$283,300

Increase in Actuarial Liability (as of December 31, 2003)	\$61,500
Amortization of Increase for FY06 (assumed average payment October 1)	
15-year level basis	\$7,900
4.5% annual increasing basis to 2028	\$4,500

The above results provide a measure of the increase in actuarial accrued liability and decrease in normal cost due to the ERIP. The actuarial liability and normal cost were determined as active members (before the implementation of the ERIP) and as retired members (with the enhanced ERIP benefit).

For active members, average service reflects service as of January 1, 2003 but excludes any enhanced service provided by the ERIP. For retired members, the averages are as of December 31, 2003.

## COST ANALYSIS BY GOVERNMENTAL UNIT *(continued)*

### Town of Grafton – Limited to 7 employees

Actives		Retirees	
Number of Members	4	Number of Members	4
Average Service	58.8	Average Age	59.8
Average Compensation	\$22,213	Average Annual Benefit	\$10,145

	As Actives	As Retirees
Total Regular Compensation	\$88,900	N/A
Total Normal Cost	\$10,900	N/A
Employee Contributions	\$6,400	N/A
Net Employer Normal Cost	\$4,500	N/A
Actuarial Liability (as of December 31, 2003)	\$354,300	\$487,200

Increase in Actuarial Liability (as of December 31, 2003)	\$132,900
Amortization of Increase for FY06 (assumed average payment October 1)	
15-year level basis	\$17,000
4.5% annual increasing basis to 2028	\$9,800

The above results provide a measure of the increase in actuarial accrued liability and decrease in normal cost due to the ERIP. The actuarial liability and normal cost were determined as active members (before the implementation of the ERIP) and as retired members (with the enhanced ERIP benefit).

For active members, average service reflects service as of January 1, 2003 but excludes any enhanced service provided by the ERIP. For retired members, the averages are as of December 31, 2003.

## COST ANALYSIS BY GOVERNMENTAL UNIT *(continued)*

### Town of Hubbardston

Actives		Retirees	
Number of Members	1	Number of Members	1
Average Service	13.8	Average Age	59.6
Average Compensation	\$21,624	Average Annual Benefit	\$8,811

	As Actives	As Retirees
Total Regular Compensation	\$21,624	N/A
Total Normal Cost	\$3,300	N/A
Employee Contributions	\$1,600	N/A
Net Employer Normal Cost	\$1,700	N/A
Actuarial Liability (as of December 31, 2003)	\$77,600	\$112,100

Increase in Actuarial Liability (as of December 31, 2003)	\$34,500
Amortization of Increase for FY06 (assumed average payment October 1)	
15-year level basis	\$4,400
4.5% annual increasing basis to 2028	\$2,500

The above results provide a measure of the increase in actuarial accrued liability and decrease in normal cost due to the ERIP. The actuarial liability and normal cost were determined as active members (before the implementation of the ERIP) and as retired members (with the enhanced ERIP benefit).

For active members, average service reflects service as of January 1, 2003 but excludes any enhanced service provided by the ERIP. For retired members, the averages are as of December 31, 2003.

## COST ANALYSIS BY GOVERNMENTAL UNIT *(continued)*

### Town of Leicester

Actives		Retirees	
Number of Members	1	Number of Members	1
Average Service	31.6	Average Age	67.2
Average Compensation	\$15,866	Average Annual Benefit	\$12,850

	As Actives	As Retirees
Total Regular Compensation	\$15,866	N/A
Total Normal Cost	\$1,500	N/A
Employee Contributions	\$600	N/A
Net Employer Normal Cost	\$900	N/A
Actuarial Liability (as of December 31, 2003)	\$119,400	\$135,300

Increase in Actuarial Liability (as of December 31, 2003)	\$15,900
Amortization of Increase for FY06 (assumed average payment October 1)	
15-year level basis	\$2,000
4.5% annual increasing basis to 2028	\$1,200

The above results provide a measure of the increase in actuarial accrued liability and decrease in normal cost due to the ERIP. The actuarial liability and normal cost were determined as active members (before the implementation of the ERIP) and as retired members (with the enhanced ERIP benefit).

For active members, average service reflects service as of January 1, 2003 but excludes any enhanced service provided by the ERIP. For retired members, the averages are as of December 31, 2003.

## COST ANALYSIS BY GOVERNMENTAL UNIT *(continued)*

### Town of Mendon – Limited to 1 employee

Actives		Retirees	
Number of Members	1	Number of Members	1
Average Service	29.4	Average Age	53.3
Average Compensation	\$71,026	Average Annual Benefit	\$49,072

	As Actives	As Retirees
Total Regular Compensation	\$71,026	N/A
Total Normal Cost	\$10,500	N/A
Employee Contributions	\$3,500	N/A
Net Employer Normal Cost	\$7,000	N/A
Actuarial Liability (as of October 11, 2003)	\$420,700	\$591,100

Increase in Actuarial Liability (as of October 11, 2003)	\$170,400
Amortization of Increase for FY06 (assumed average payment October 1)	
15-year level basis	\$22,200
4.5% annual increasing basis to 2028	\$12,700

The above results provide a measure of the increase in actuarial accrued liability and decrease in normal cost due to the ERIP. The actuarial liability and normal cost were determined as active members (before the implementation of the ERIP) and as retired members (with the enhanced ERIP benefit).

For active members, average service reflects service as of January 1, 2003 but excludes any enhanced service provided by the ERIP. For retired members, the averages are as of December 31, 2003.

## COST ANALYSIS BY GOVERNMENTAL UNIT *(continued)*

### Town of North Brookfield – Limited to 3 employees

Actives		Retirees	
Number of Members	2	Number of Members	2
Average Service	26.9	Average Age	59.8
Average Compensation	\$27,882	Average Annual Benefit	\$18,833

	As Actives	As Retirees
Total Regular Compensation	\$55,800	N/A
Total Normal Cost	\$5,000	N/A
Employee Contributions	\$2,900	N/A
Net Employer Normal Cost	\$2,100	N/A
Actuarial Liability (as of December 31, 2003)	\$308,400	\$418,600

Increase in Actuarial Liability (as of December 31, 2003)	\$110,200
Amortization of Increase for FY06 (assumed average payment October 1)	
15-year level basis	\$14,100
4.5% annual increasing basis to 2028	\$8,100

The above results provide a measure of the increase in actuarial accrued liability and decrease in normal cost due to the ERIP. The actuarial liability and normal cost were determined as active members (before the implementation of the ERIP) and as retired members (with the enhanced ERIP benefit).

For active members, average service reflects service as of January 1, 2003 but excludes any enhanced service provided by the ERIP. For retired members, the averages are as of December 31, 2003.

## COST ANALYSIS BY GOVERNMENTAL UNIT *(continued)*

### Town of Oxford

Actives		Retirees	
Number of Members	4	Number of Members	4
Average Service	14.2	Average Age	62.3
Average Compensation	\$25,524	Average Annual Benefit	\$10,464

	As Actives	As Retirees
Total Regular Compensation	\$102,100	N/A
Total Normal Cost	\$14,600	N/A
Employee Contributions	\$7,600	N/A
Net Employer Normal Cost	\$7,000	N/A
Actuarial Liability (as of December 31, 2003)	\$361,800	\$480,300

Increase in Actuarial Liability (as of December 31, 2003)	\$118,500
Amortization of Increase for FY06 (assumed average payment October 1)	
15-year level basis	\$15,200
4.5% annual increasing basis to 2028	\$8,700

The above results provide a measure of the increase in actuarial accrued liability and decrease in normal cost due to the ERIP. The actuarial liability and normal cost were determined as active members (before the implementation of the ERIP) and as retired members (with the enhanced ERIP benefit).

For active members, average service reflects service as of January 1, 2003 but excludes any enhanced service provided by the ERIP. For retired members, the averages are as of December 31, 2003.

## COST ANALYSIS BY GOVERNMENTAL UNIT *(continued)*

### Town of Petersham – Limited to 1 employee

Actives		Retirees	
Number of Members	1	Number of Members	1
Average Service	22	Average Age	53.3
Average Compensation	\$37,272	Average Annual Benefit	\$15,356

	As Actives	As Retirees
Total Regular Compensation	\$37,272	N/A
Total Normal Cost	\$1,400	N/A
Employee Contributions	\$1,400	N/A
Net Employer Normal Cost	\$0	N/A
Actuarial Liability (as of December 31, 2003)	\$78,000	\$95,700

Increase in Actuarial Liability (as of December 31, 2003)	\$17,700
Amortization of Increase for FY06 (assumed average payment October 1)	
15-year level basis	\$2,300
4.5% annual increasing basis to 2028	\$1,300

The above results provide a measure of the increase in actuarial accrued liability and decrease in normal cost due to the ERIP. The actuarial liability and normal cost were determined as active members (before the implementation of the ERIP) and as retired members (with the enhanced ERIP benefit).

For active members, average service reflects service as of January 1, 2003 but excludes any enhanced service provided by the ERIP. For retired members, the averages are as of December 31, 2003.

Total compensation and service figures are shown, but costs and liabilities reflect an allocation due to this member's service in two units.

## COST ANALYSIS BY GOVERNMENTAL UNIT *(continued)*

### Town of Sterling – Limited to 2 Group 1 employees

Actives		Retirees	
Number of Members	2	Number of Members	2
Average Service	31.0	Average Age	61.7
Average Compensation	\$28,125	Average Annual Benefit	\$22,151

	As Actives	As Retirees
Total Regular Compensation	\$56,200	N/A
Total Normal Cost	\$4,600	N/A
Employee Contributions	\$2,400	N/A
Net Employer Normal Cost	\$2,200	N/A
Actuarial Liability (as of December 31, 2003)	\$370,600	\$478,500

Increase in Actuarial Liability (as of December 31, 2003)	\$107,900
Amortization of Increase for FY06 (assumed average payment October 1)	
15-year level basis	\$13,800
4.5% annual increasing basis to 2028	\$7,900

The above results provide a measure of the increase in actuarial accrued liability and decrease in normal cost due to the ERIP. The actuarial liability and normal cost were determined as active members (before the implementation of the ERIP) and as retired members (with the enhanced ERIP benefit).

For active members, average service reflects service as of January 1, 2003 but excludes any enhanced service provided by the ERIP. For retired members, the averages are as of December 31, 2003.

## COST ANALYSIS BY GOVERNMENTAL UNIT *(continued)*

### Town of Sturbridge – Limited to 10 employees from only Groups 1 & 4

Actives		Retirees	
Number of Members	8	Number of Members	8
Average Service	26.9	Average Age	59.4
Average Compensation	\$31,695	Average Annual Benefit	\$22,243

	As Actives	As Retirees
Total Regular Compensation	\$253,600	N/A
Total Normal Cost	\$25,400	N/A
Employee Contributions	\$15,300	N/A
Net Employer Normal Cost	\$10,100	N/A
Actuarial Liability (as of December 31, 2003)	\$1,411,900	\$1,901,400

Increase in Actuarial Liability (as of December 31, 2003)	\$489,500
Amortization of Increase for FY06 (assumed average payment October 1)	
15-year level basis	\$62,700
4.5% annual increasing basis to 2028	\$36,000

The above results provide a measure of the increase in actuarial accrued liability and decrease in normal cost due to the ERIP. The actuarial liability and normal cost were determined as active members (before the implementation of the ERIP) and as retired members (with the enhanced ERIP benefit).

For active members, average service reflects service as of January 1, 2003 but excludes any enhanced service provided by the ERIP. For retired members, the averages are as of December 31, 2003.

## COST ANALYSIS BY GOVERNMENTAL UNIT *(continued)*

### Town of Westboro – Limited to only Group 4 employees

Actives		Retirees	
Number of Members	2	Number of Members	2
Average Service	27.3	Average Age	50.6
Average Compensation	\$47,947	Average Annual Benefit	\$34,617

	As Actives	As Retirees
Total Regular Compensation	\$95,900	N/A
Total Normal Cost	\$14,100	N/A
Employee Contributions	\$7,000	N/A
Net Employer Normal Cost	\$7,100	N/A
Actuarial Liability (as of December 31, 2003)	\$534,200	\$806,200

Increase in Actuarial Liability (as of December 31, 2003)	\$272,000
Amortization of Increase for FY06 (assumed average payment October 1)	
15-year level basis	\$34,800
4.5% annual increasing basis to 2028	\$20,000

The above results provide a measure of the increase in actuarial accrued liability and decrease in normal cost due to the ERIP. The actuarial liability and normal cost were determined as active members (before the implementation of the ERIP) and as retired members (with the enhanced ERIP benefit).

For active members, average service reflects service as of January 1, 2003 but excludes any enhanced service provided by the ERIP. For retired members, the averages are as of December 31, 2003.

## COST ANALYSIS BY GOVERNMENTAL UNIT *(continued)*

### Town of Westminster – Limited to 1 Group 1 employee

Actives		Retirees	
Number of Members	1	Number of Members	1
Average Service	34.5	Average Age	61.0
Average Compensation	\$29,745	Average Annual Benefit	\$22,877

	As Actives	As Retirees
Total Regular Compensation	\$29,745	N/A
Total Normal Cost	\$2,200	N/A
Employee Contributions	\$1,300	N/A
Net Employer Normal Cost	\$900	N/A
Actuarial Liability (as of December 31, 2003)	\$205,700	\$244,000

Increase in Actuarial Liability (as of December 31, 2003)	\$38,300
Amortization of Increase for FY06 (assumed average payment October 1)	
15-year level basis	\$4,900
4.5% annual increasing basis to 2028	\$2,800

The above results provide a measure of the increase in actuarial accrued liability and decrease in normal cost due to the ERIP. The actuarial liability and normal cost were determined as active members (before the implementation of the ERIP) and as retired members (with the enhanced ERIP benefit).

For active members, average service reflects service as of January 1, 2003 but excludes any enhanced service provided by the ERIP. For retired members, the averages are as of December 31, 2003.

## COST ANALYSIS BY GOVERNMENTAL UNIT *(continued)*

### Dudley/Charlton Regional School District

Actives		Retirees	
Number of Members	4	Number of Members	4
Average Service	17.3	Average Age	57.8
Average Compensation	\$25,394	Average Annual Benefit	\$10,793

	As Actives	As Retirees
Total Regular Compensation	\$101,600	N/A
Total Normal Cost	\$11,800	N/A
Employee Contributions	\$7,800	N/A
Net Employer Normal Cost	\$4,000	N/A
Actuarial Liability (as of December 31, 2003)	\$407,300	\$544,200

Increase in Actuarial Liability (as of December 31, 2003)	\$136,900
Amortization of Increase for FY06 (assumed average payment October 1)	
15-year level basis	\$17,500
4.5% annual increasing basis to 2028	\$10,100

The above results provide a measure of the increase in actuarial accrued liability and decrease in normal cost due to the ERIP. The actuarial liability and normal cost were determined as active members (before the implementation of the ERIP) and as retired members (with the enhanced ERIP benefit).

For active members, average service reflects service as of January 1, 2003 but excludes any enhanced service provided by the ERIP. For retired members, the averages are as of December 31, 2003.

## COST ANALYSIS BY GOVERNMENTAL UNIT *(continued)*

### Mendon/Upton Regional School District – Limited to 3 employees

Actives		Retirees	
Number of Members	2	Number of Members	2
Average Service	17.3	Average Age	59.9
Average Compensation	\$15,450	Average Annual Benefit	\$8,232

	As Actives	As Retirees
Total Regular Compensation	\$30,900	N/A
Total Normal Cost	\$3,900	N/A
Employee Contributions	\$2,100	N/A
Net Employer Normal Cost	\$1,900	N/A
Actuarial Liability (as of December 31, 2003)	\$143,400	\$203,300

Increase in Actuarial Liability (as of December 31, 2003)	\$59,900
Amortization of Increase for FY06 (assumed average payment October 1)	
15-year level basis	\$7,700
4.5% annual increasing basis to 2028	\$4,400

The above results provide a measure of the increase in actuarial accrued liability and decrease in normal cost due to the ERIP. The actuarial liability and normal cost were determined as active members (before the implementation of the ERIP) and as retired members (with the enhanced ERIP benefit).

For active members, average service reflects service as of January 1, 2003 but excludes any enhanced service provided by the ERIP. For retired members, the averages are as of December 31, 2003.

## COST ANALYSIS BY GOVERNMENTAL UNIT *(continued)*

### Millbury Housing Authority

Actives		Retirees	
Number of Members	1	Number of Members	1
Average Service	17.5	Average Age	61.4
Average Compensation	\$41,254	Average Annual Benefit	\$20,406

	As Actives	As Retirees
Total Regular Compensation	\$41,254	N/A
Total Normal Cost	\$4,800	N/A
Employee Contributions	\$3,100	N/A
Net Employer Normal Cost	\$1,700	N/A
Actuarial Liability (as of December 31, 2003)	\$166,100	\$215,400

Increase in Actuarial Liability (as of December 31, 2003)	\$49,300
Amortization of Increase for FY06 (assumed average payment October 1)	
15-year level basis	\$6,300
4.5% annual increasing basis to 2028	\$3,600

The above results provide a measure of the increase in actuarial accrued liability and decrease in normal cost due to the ERIP. The actuarial liability and normal cost were determined as active members (before the implementation of the ERIP) and as retired members (with the enhanced ERIP benefit).

For active members, average service reflects service as of January 1, 2003 but excludes any enhanced service provided by the ERIP. For retired members, the averages are as of December 31, 2003.

## COST ANALYSIS BY GOVERNMENTAL UNIT *(continued)*

### Quabbin Regional School District – Limited to 3 employees

Actives		Retirees	
Number of Members	2	Number of Members	2
Average Service	13.3	Average Age	61.2
Average Compensation	\$23,287	Average Annual Benefit	\$8,890

	As Actives	As Retirees
Total Regular Compensation	\$46,600	N/A
Total Normal Cost	\$7,000	N/A
Employee Contributions	\$3,600	N/A
Net Employer Normal Cost	\$3,400	N/A
Actuarial Liability (as of December 31, 2003)	\$140,700	\$201,200

Increase in Actuarial Liability (as of December 31, 2003)	\$60,500
Amortization of Increase for FY06 (assumed average payment October 1)	
15-year level basis	\$7,700
4.5% annual increasing basis to 2028	\$4,400

The above results provide a measure of the increase in actuarial accrued liability and decrease in normal cost due to the ERIP. The actuarial liability and normal cost were determined as active members (before the implementation of the ERIP) and as retired members (with the enhanced ERIP benefit).

For active members, average service reflects service as of January 1, 2003 but excludes any enhanced service provided by the ERIP. For retired members, the averages are as of December 31, 2003.

## COST ANALYSIS BY GOVERNMENTAL UNIT *(continued)*

### Spencer/East Brookfield Regional School District – Limited to 11 employees

Actives		Retirees	
Number of Members	1	Number of Members	1
Average Service	18.4	Average Age	58.0
Average Compensation	\$19,991	Average Annual Benefit	\$9,126

	As Actives	As Retirees
Total Regular Compensation	\$19,991	N/A
Total Normal Cost	\$2,100	N/A
Employee Contributions	\$1,500	N/A
Net Employer Normal Cost	\$600	N/A
Actuarial Liability (as of December 31, 2003)	\$89,100	\$119,900

Increase in Actuarial Liability (as of December 31, 2003)	\$30,800
Amortization of Increase for FY06 (assumed average payment October 1)	
15-year level basis	\$3,900
4.5% annual increasing basis to 2028	\$2,300

The above results provide a measure of the increase in actuarial accrued liability and decrease in normal cost due to the ERIP. The actuarial liability and normal cost were determined as active members (before the implementation of the ERIP) and as retired members (with the enhanced ERIP benefit).

For active members, average service reflects service as of January 1, 2003 but excludes any enhanced service provided by the ERIP. For retired members, the averages are as of December 31, 2003.

## COST ANALYSIS BY GOVERNMENTAL UNIT *(continued)*

### Worcester Regional Retirement System – Limited to 1 employee

Actives		Retirees	
Number of Members	1	Number of Members	1
Average Service	18.0	Average Age	64.2
Average Compensation	\$34,557	Average Annual Benefit	\$16,599

	As Actives	As Retirees
Total Regular Compensation	\$34,557	N/A
Total Normal Cost	\$4,700	N/A
Employee Contributions	\$2,500	N/A
Net Employer Normal Cost	\$2,200	N/A
Actuarial Liability (as of January 30, 2004)	\$154,000	\$202,000

Increase in Actuarial Liability (as of January 30, 2004)	\$48,000
Amortization of Increase for FY06 (assumed average payment October 1)	
15-year level basis	\$6,100
4.5% annual increasing basis to 2028	\$3,500

The above results provide a measure of the increase in actuarial accrued liability and decrease in normal cost due to the ERIP. The actuarial liability and normal cost were determined as active members (before the implementation of the ERIP) and as retired members (with the enhanced ERIP benefit).

For active members, average service reflects service as of January 1, 2003 but excludes any enhanced service provided by the ERIP. For retired members, the averages are as of December 31, 2003.

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## EFFECT ON FUNDING SCHEDULE

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### Amortization of the Increase in Actuarial Accrued Liability

The bottom section of the cost page for each governmental unit shows the amortization of the increase in actuarial accrued liability on two separate bases. The 15-year, level amortization basis requires an annual funding amount of \$291,500 from FY06 through FY20. The 4.5% increasing basis until FY28 requires a funding amount of approximately \$167,300 for FY06 and increases 4.5% each year until FY28. The allocation to each governmental unit is summarized below. Future system appropriations will reflect these unit costs.

<b>Governmental Unit</b>	<b>Level, 15-year Effective FY06</b>	<b>4.5%increasing, 23-year Effective FY06</b>
Town of Auburn	\$26,800	\$15,400
Town of Barre	\$2,300	\$1,300
Town of Douglas	\$11,900	\$6,800
Town of Dudley	\$7,900	\$4,500
Town of Grafton	\$17,000	\$9,800
Town of Hubbardston	\$4,400	\$2,500
Town of Leicester	\$2,000	\$1,200
Town of Mendon	\$22,200	\$12,700
Town of North Brookfield	\$14,100	\$8,100
Town of Oxford	\$15,200	\$8,700
Town of Petersham	\$2,300	\$1,300
Town of Sterling	\$13,800	\$7,900
Town of Sturbridge	\$62,700	\$36,000
Town of Westboro	\$34,800	\$20,000
Town of Westminster	\$4,900	\$2,800
Dudley/Charlton Reg. School	\$17,500	\$10,100
Mendon/Upton Reg. School	\$7,700	\$4,400
Millbury Housing Authority	\$6,300	\$3,600
Quabbin Regional School	\$7,700	\$4,400
Spencer/ E. Brookfield Reg. School	\$3,900	\$2,300
Worcester Reg. Ret. System	\$6,100	\$3,500
<b>Total</b>	<b>\$291,500</b>	<b>\$167,300</b>

The legislation did not specify how the increased cost should be amortized under the schedule. The Board has indicated it will likely amortize the cost in the same manner as the schedule that will be determined shortly as part of the January 1, 2004 actuarial valuation.

### Decrease in Normal Cost

There is a decrease in employer normal cost for all units of approximately \$68,300 in FY04 for retiring members since normal cost accrues only for active members. This decrease is only expected to last a few years (the period the member would have remained in service if the ERIP were not implemented). This decrease will be partially offset by the normal cost for any members hired to replace retiring members. Any decrease in employer normal cost will be reflected in future actuarial valuations and corresponding funding schedules. We have not estimated the normal cost for new hires as part of this study.

# ACTUARIAL ASSUMPTIONS

Actuarial Cost Method Entry Age Normal

Investment Return 8.5% per year

Interest Rate credited to the Annuity Savings Fund 3.5% per year

Assumed rate of Cost of Living Increases (COLA) 3% per year

Mortality RP- 2000 Healthy Annuitant table (gender distinct). This is applicable to both pre-retirement and post-retirement benefits. For disabled members, the mortality rate is assumed to be in accordance with the RP- 2000 Table (gender distinct) set forward 2 years. It is assumed that 55% of pre-retirement deaths are job-related for Group 1 and 2 members and 90% are job-related for Group 4 members. For members retired under an Accidental Disability, 40% of deaths are assumed to be from the same cause as the disability.

Salary Increase Based on an analysis of past experience. Annual rates are shown below.

Service	Group 1	Group 2	Group 4
0	7.00%	7.00%	8.00%
1	6.50%	6.50%	7.50%
2	6.50%	6.50%	7.00%
3	6.00%	6.00%	6.50%
4	6.00%	6.00%	6.00%
5	5.50%	5.50%	6.00%
6	5.50%	5.50%	5.50%
7	5.00%	5.00%	5.50%
8	5.00%	5.00%	5.25%
9	4.75%	5.00%	5.25%
10+	4.75%	5.00%	5.25%

## ACTUARIAL ASSUMPTIONS *(continued)*

### Retirement

Age	Groups 1 & 2		Group 4
	Male	Female	
45	0.000	0.000	0.010
46	0.000	0.000	0.010
47	0.000	0.000	0.010
48	0.000	0.000	0.010
49	0.000	0.000	0.010
50	0.010	0.015	0.020
51	0.010	0.015	0.020
52	0.010	0.020	0.020
53	0.010	0.025	0.050
54	0.020	0.025	0.075
55	0.020	0.055	0.150
56	0.025	0.065	0.100
57	0.025	0.065	0.100
58	0.050	0.065	0.100
59	0.065	0.065	0.150
60	0.120	0.050	0.200
61	0.200	0.130	0.200
62	0.300	0.150	0.250
63	0.250	0.125	0.250
64	0.220	0.180	0.300
65	0.400	0.150	1.000
66	0.250	0.200	1.000
67	0.250	0.200	1.000
68	0.300	0.250	1.000
69	0.300	0.200	1.000
70	1.000	1.000	1.000

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## ACTUARIAL ASSUMPTIONS *(continued)*

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**Disability**      Based on an analysis of past experience. Sample annual rates are shown below.

Age	<u>Groups 1 &amp; 2</u>	Group 4
20	0.00010	0.0010
30	0.00030	0.0030
40	0.00101	0.0030
50	0.00192	0.0125
60	0.00280	0.0085

Based on an analysis of past experience. It is also assumed that the percentage of job-related disabilities is 55% for Groups 1 & 2 and 90% for Group 4.

### Withdrawal

Based on analysis of past experience. Annual rates are based on years of service. Sample annual rates for Groups 1 and 2 are shown below. For Group 4 members the rate is 0.015 each year for service up to and including 10 years. No withdrawal is assumed thereafter.

### Groups 1 & 2

Service	Groups 1 & 2
0	0.150
5	0.076
10	0.054
15	0.033
20	0.020

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